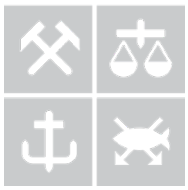

Norwegian School of Economics

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Main vs. Junior IPO Markets

An empirical study of firm-specific characteristics that affect companies' choice of IPO market in Sweden

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This thesis was written as a part of the Master of Science in Economics and Business Administration at NHH. Please note that neither the institution nor the examiners are responsible − through the approval of this thesis − for the theories and methods used, or results and conclusions drawn in this work.

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Preface

This master thesis is written as part of our Master of Science degree in Finance at the Norwegian School of Economics. Through this thesis we have developed a better understanding for the process of writing an academic paper and learned about a new topic that is relevant for our degree. We have found the writing process to be very rewarding by applying our knowledge in finance on real life data which has resulted in valuable learning outcomes.

We would like to thank our thesis supervisor Karin Thorburn for valuable insights and extraordinary supervision throughout the writing process. We appreciate her genuine helpfulness and honesty when giving advice. Even with her busy schedule she was always available for counseling and support.

The views, findings and conclusions of this paper are solely those of the authors.

Bergen, December 2019

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Abstract

This study examines the initial listing decision of firms that are qualified to list on Nasdaq Stockholm main market but choose to list on Nasdaq First North junior market instead. While many of previous studies have focused on explaining firms' motivation behind going public, very little research has been made on explaining firms' choice of an IPO market. This study contributes to the existing literature by examining company characteristics of 283 firms that went public in Sweden between January 2007 and November 2019. During this period, 145 companies chose to list on First North junior market even though they were eligible to list on the main market. This is interesting as the main market is considered to be superior to junior market. We use probit analysis to investigate whether firm-specific characteristics affect the choice of listing on the junior market rather than the main market and find that these two markets attract firms with different characteristics. The results show that firms controlled by managerial owners, such as founders and/or CEOs, are more likely list on the junior market. Conversely, firms controlled by institutional investors, such as private equity firms and venture capitalists, are more likely to join the main market. We also find that non-profitable firms are more likely to list on the junior market. However, we cannot find evidence for that the amount of capital raised affects firms' initial listing choice. In summary, this study suggests that firms' initial listing choice is not only controlled by exchange listing requirements but also depends on company characteristics.

Keywords: IPOs, Nasdaq Stockholm, First North, main market, junior market, listing requirements.

Table of Contents

Preface ... 2
Abstract ... 3
1 Introduction ... 5
1.1 Purpose ... 7
1.2 Delimitations ... 8
1.3 Outline ... 8
2 Main vs junior markets – literature review ... 8
3 The Swedish stock markets ... 12
3.1 History and current structure ... 12
3.2 Listing requirements ... 14
4 Hypotheses ... 17
4.1 Ownership ... 17
4.2 Capital raised ... 19
4.3 Profitability ... 19
5 Methodology ... 20
5.1 Probit Regression Analysis ... 20
5.2 Linear Probability Model ... 21
5.3 Multinomial Logistic Regression ... 21
5.4 Evaluation of Regression Models ... 22
6 Data ... 22
6.1 Data Collection ... 22
6.2 Sub-sample Classification ... 23
6.3 Independent Variables ... 24
6.4 Control Variables ... 25
7 Descriptive Statistics ... 28
7.1 Overview of the IPO market ... 28
7.2 Independent variables ... 29
7.3 Control variables ... 30
8 Empirical Analysis ... 32
9 Conclusion ... 36
References ... 38
Appendix ... 41
Correlations ... 41
Probit regression model ... 42
Linear Probability Model ... 42

1 Introduction

One of the important channels whereby economic growth is created in modern economies is through the funding of young and growing companies. The increasing importance of entrepreneurial finance has led to the emergence of a new type of stock exchange markets, referred to as junior markets (Bernstein et al., 2018)[3]. The aim of these junior markets is to meet the financial needs of young and small companies that otherwise would not be eligible to list on the main market. Thus, these exchanges are usually characterized by less stringent listing requirements and lower listing costs compared to the main market (Vismara et al., 2012).

The rising success of junior markets has been documented by several studies. Bernstein et al. (2018) study stock exchanges in 113 countries and report that 78 new junior markets in 48 countries have been launched since 1990. They also show that the creation of these junior markets has been successful in the sense that they have not cannibalized the inflow of new companies to the main markets. Vismara et al. (2012) study Initial Public Offerings (IPOs) in four large European markets between 1995 and 2009 where only 845 out of 3 755 IPOs took place on the main market while 2 910 IPOs occurred on the junior market. Doukas and Hoque (2016) document a similar uneven distribution of IPOs on the UK market. Between 1995 and 2014 there were 3 578 new listings to the AIM[4] (junior market) and only 1 001 to the London Stock Exchange (main market). The popularity and attractiveness of the AIM was not limited to UK firms as 636 out of the 3 578 listings originated from foreign countries. The success of the AIM has motivated other European exchanges to launch similar junior markets. In Belgium, NYSE-Euronext opened the Alternext while the Nasdaq OMX Group launched Nasdaq OMX First North in the Nordic region (Doukas and Hoque, 2016).

The emergence and popularity of junior markets in Europe has raised questions regarding firms' initial listing choice. One of the questions that Vismara et al. (2012) address in their study is whether firms that go public on the junior markets have different characteristics from the firms listing on the main market. As they expected, their results suggest that companies on the main market are generally larger and older. Moreover, companies that list on the junior market tend to raise more capital during their IPO relative to their size. They also speculate that

[3] Also referred to as second and second-tier markets
[4] Alternative Investment Market

firms on the junior market are backed by venture capitalists to a greater extent, but they do not find support for this hypothesis. Other studies have addressed questions related to the performance of companies on junior markets. Both Gerakos et al. (2011) and Vismara et al. (2012) show that firms listed on the junior market perform worse in several ways. Both post-listing returns and liquidity are significantly lower for firms on the junior market compared to those on the main market.

A common explanation behind firms' listing choice has been linked to the difference in listing requirements. Mendoza (2008) claims that the AIM was created to cover a funding gap for companies that otherwise would not be able to list on the main market due to stringent listing requirements. Jenkinson and Ramadorari (2013) similarly argue that the growing popularity of junior markets is due to their lighter listing requirements. While listing regulations can be one factor behind firms' listing choice, Doukas and Hoque (2016) show that the choice to list on the junior market is also affected by other factors. In their study, 566 out of 1 143 IPOs to the AIM were by companies that chose to list on the AIM even though they met the listing requirements for the main market. Unlike other studies, Doukas and Hoque (2016) control for the stringent requirements of the main market by dividing the sample into three categories: firms that list on the main market, AIM firms that don't meet the main market requirements, and AIM firms that meet the main market requirements. The overall results show that firms' initial listing decision is a part of their corporate strategy and is likely to be influenced by firm-specific characteristics.

The finding that firms in the UK list on the junior market even when they are eligible to list on the main market raises the question of whether this behavior exists in other markets as well. While previous studies have investigated different aspects of junior and main exchanges in large markets, such as in the US and the UK, no studies that we know of have examined junior markets in the Nordic region. Hence, the aim of this study is to investigate the listing decision on one of the Nordic stock markets. We focus on the Swedish stock market, the largest market in the Nordics both in terms of number of listings and daily activity (Nasdaq A, 2019). The Swedish stock market mainly consists of Nasdaq Stockholm (main market) and Nasdaq First North Growth Market (junior market), both run by Nasdaq. First North has been very popular since its inception in late 2006, attracting over 350 companies in 13 years. While other countries, like the US, the UK, and Germany, have experienced a significant drop in number of

new listings, the Swedish IPO market reached an all-time high number of IPOs in 2017, which makes it even more interesting as a subject (Worldbank, 2019).

This study builds on the previous empirical research on firms' initial listing decision. We use both linear probability model (LPM or OLS regression) and probit analysis to investigate whether firm-specific characteristics affect firms' choice of IPO market. Firstly, we find that 145 out of the 204 companies that went public on the junior market were qualified for the main market. Our analysis shows that companies that choose the junior market are significantly smaller in terms of total assets. However, a firm's age is not significant, suggesting that age does not play any significant role in their choice of IPO market in Sweden. While we do complement previous research by investigating a new market, our main contribution is by examining a set of firm-specific characteristics that are unique for our study. We find that the type of ownership is likely to affect the choice of IPO market in Sweden. Firms with managerial owners, such as CEOs and founders, are more likely to list on the junior market, while firms with institutional owners are more likely to list on the main market. We also find support for unprofitable firms preferring to list on the junior market. Moreover, we investigate the importance of raising capital through the IPO but do not find evidence that money raised affects a firm's initial listing choice. Our results are robust for both probit regression and OLS regression analysis.

1.1 Purpose

This study examines a unique dataset of 283 IPOs on the Nasdaq Stockholm main market and Nasdaq First North growth market. We aim to contribute to the existing literature by studying a new set of firm-specific characteristics that have not been studied before. In specific, we study the ownership, profitability and capital raised, to investigate whether these firms-specific characteristics affect firms' initial listing choice in Sweden. Our main research question is: *What firm-specific characteristics affect companies' choice of IPO market in Sweden?* This research question will be answered with help of our 4 hypotheses proposed in section 4.

1.2 Delimitations

To answer the research question in a methodical and unbiased manner we have outlined some limits to the scope of our research. Our main concern is to not let any preconceptions affect the results and therefore all data has been collected from sources we deem to be reliable. As argued by Doukas and Hoque (2016), country-specific factors such as regulations, taxes and market sentiment might influence firms' initial listing decision. Therefore, this study focusses solely on the Swedish market to avoid differences in country-specific factors. Further, we only study the Nasdaq Stockholm Main Market and Nasdaq First North Growth market. These are the most popular Swedish exchanges and are linked by having the same owner. Due to low activity and limited data availability, other equity markets in Sweden will not be included in this study. Further, the studied time period is January 2007 to October 2019. The data is related only to new IPOs while re-listings, spin-offs, dual-listings and Seasoned Equity Offerings (SEOs) are excluded from the sample.

1.3 Outline

The rest of this paper is organized as follows. First, we present a review of the existing literature in Section 2. Thereafter, Section 3 describes the Swedish stock market to give some baseline information and help distinguish it from the other markets analyzed in previous research. Section 4 presents our hypotheses and Section 5 describes the methodology used to answer these statements. Section 6 describes the data collection process and the choice of variables. In Section 7 descriptive statistics for our variables are presented. Section 8 presents the regression results and a discussion of such results. The paper is concluded in Section 9.

2 Main vs junior markets – literature review

The motivation behind IPOs has been widely discussed and resulted in countless academic studies. Brau and Fawcett (2006) show that the primary motivation for going public in the US is to facilitate future acquisitions. Pagano et al. (1998), on the other hand, show that in Italy firms go public to rebalance their capital structure rather than to finance future growth. Another study made by Lawry (2003) show that IPO volume is mainly related to corporate capital needs

and investor sentiment. While many studies have focused on explaining the motivation behind going public, little research has been made on explaining firms' initial listing decision.

One of the earlier studies related to this topic was performed by Corwin and Harris (2001) who study the initial listing decision of firms that went public in the US between 1991 and 1996. Their sample consist of companies that listed either on the NYSE[5] and companies that listed on Nasdaq even though they met the listing requirements of NYSE. 337 out of 438 (76.9%) IPOs were to the NYSE, while 101 (23.1%) were to Nasdaq. The authors state that listing costs, including indirect underpricing costs, are the same for both exchanges. Thus, the reason why 23.1% of NYSE eligible firms chose to list on Nasdaq ought to depend on company specific preferences. Corwin and Harris (2001) find that firms tend to choose the exchange where their industry peers are listed. This finding is in line with their expectation that firms' listing choice might be clustered by industry. The authors believe that firms choose the exchange that has the expertise and experience in trading similar securities. In US, Nasdaq is considered as the primary exchange for technology companies because of the big tech corporations, such as Apple and Google, that are listed there. Corwin and Harris (2012) also suggest that smaller and riskier firms are more likely to list on Nasdaq, which they link to Nasdaq's lower delisting costs that are associated with the loss of initial listing fees paid, negative stock price reaction and loss of reputation. Smaller and risker companies might have higher expectation of failure after going public and therefore take the delisting costs into consideration when choosing the exchange market. Lastly, Corwin and Harris (2001) do not find evidence that firms' age plays an important role in the choice of an IPO market.

None of the later studies have further investigated the initial listing decision in the US but have rather focused on the European markets. However, the US stock exchange market is organized differently from European markets (Ritter, 2003). The US security market is dominated by two major exchanges, the NYSE and Nasdaq (Beny, 2001). NYSE is primarily an auction market with a physical trading floor where most transactions are between the actual buyer and seller. Nasdaq is conversely a dealer market where market-makers post their bid and ask prices at which public investors buy or sell their shares (Andersson and Dyl, 2005). These two markets also differ in terms of listing requirements. Compared to NYSE, Nasdaq has much lower quantitative requirements, such as minimum market capitalization and the share

[5] New York Stock Exchange

percentage held by the public (free-float). AMEX[6] is another major US exchange that is owned by NYSE since 2008. Historically, AMEX has attracted small and young companies due to its less stringent requirements (Johnson, 2014). In fact, AMEX has even lower listing requirements than Nasdaq (Devos and Tse, 2004).

While the US stock market is dominated by two main exchanges most of the European markets are organized with only one main market and one or several junior markets aimed at particular classes of firms. These junior markets are characterized by less stringed listing requirements to allow young and small companies to raise capital (Vismara et al. 2012). One of the most popular and successful junior markets in Europe is the AIM which is the junior market for the London Stock Exchange. Since its launch in 1995, the AIM has attracted over 3 500 IPOs, both domestic and foreign (Doukas and Hoque, 2016). As documented by Vismara et al. (2012), the liquidity and visibility on the London Stock Exchange is much higher compared to the AIM, yet many companies choose to join the junior market. The increasing popularity of the AIM has mainly been explained by more flexible listing requirements (Jenkinson and Ramadorari, 2013).

Vismara et al. (2012) study the evolution of junior markets by analyzing 3 755 IPOs that took place on the four largest European markets between 1995 and 2009. The markets they study are London Stock Exchange (UK), Paris Bourse (France), Deutsche Börse (Germany) and Borsa Italiana (Italy) and junior markets belonging to these exchanges. By comparing differences in means and medians, their results suggest that characteristics of the firms going public on the main market are different from those on the junior market. As they expected, the companies that went public on the main market were older and larger, both in terms of market size and sales. Their study also shows that money raised through the IPO relative to the company's size is higher for companies that listed on the junior market. Further, they investigate the role of venture capitalists taking firms to the stock market but do not find any significant differences between firms on the main and junior markets. Although junior markets have helped firms to raise capital, Vismara et al. (2012) show that the average long-run performance of the firms on the junior market is much worse than of those listed on the main market.

[6] American Stock Exchange

In their study Vismara et al. (2012) also identify three different models of junior markets to understand the motivation behind companies' listing choice. The first model is the "Sequential segmentation model" where small companies are expected to grow in the junior market until they eventually fulfil the listing requirements for the main and then transfer. The second model is the "Sectorial model", a form that was very successful during the internet bubble. Sectorial junior markets were created during 1996 and 1999 to help the growing industry of high-tech companies to raise capital. However, the sectorial type of markets slowly disappeared after the internet bubble collapse in the early 2000s. The last model is the "Demand-side model", which is typically associated with London's AIM. The listing on such a market does not constitute a listing on an official market as the offering is a so-called "non-public offering", meaning it is intended for qualified institutional investors rather than retail investors. Since the shares are not offered to the general public and only a smaller group of investors, the national listing authorities are not required to approve firms' prospectuses and instead a shorter admission document is sufficient.

Even though these three market categories are supposed to be mutually exclusive, many junior markets do not fit into any of the aforementioned models. For instance, Vismara et al. (2012) show that even though the German junior market, Neuer Markt, was created for tech-companies, many non-tech firms were also listed there. They also find that the transfer of successful companies from the junior to the main market, as predicted by the Sequential model, rarely happened on the European stock markets.

The popularity of the AIM is also addressed by Doukas and Hoque (2016) who show that many companies that meet the stringent listing requirements of the main market nonetheless choose to list on the AIM. According to Doukas and Hoque (2016), 566 out of 1 143 firms that went public on the AIM between 1995 and 2014 met the listing requirements of the main market and could have listed there. They investigate this issue in depth by studying three different sub-samples of companies. The first group consists of firms that listed on the main market, the second group consists of AIM firms that did not meet the main market listing requirements and the third group of AIM firms that met main market requirements. Unlike Vismara et al. (2012) who only study differences in firm characteristics by comparing means and medians, Doukas and Hoque (2016) use probit regression analysis to measure the effect of each variable on the probability of listing on the main or junior market. They find that these two markets attract different kinds of companies depending on characteristics such as age, size, profitability and

sales. They also note that the choice is probably influenced by a combination of such factors as well as other factors not investigated. They find evidence that companies listing on the main market are larger and older compared to junior market companies. Their results also suggest that characteristics such as ownership concentration, excess admission fee (difference between AIM's and main market's listing costs) and sales are likely to affect firms initial listing decision. Overall, they conclude that firms' initial listing decision is not limited to a market's listing requirements but also depends on firm- specific characteristics as well as firms' investment and financing strategies.

The most recent study on junior markets is made by Granier et al. (2019) who examine the different functions of junior markets in Europe and Japan. What is unique about this study is that First North is one of the junior markets included in the study. However, the results are not related to firm's initial listings decision. The most interesting finding related to our study is that all junior markets included in Granier et al. (2019) study are associated with a large number of SEOs and a small amount of money raised in the IPO. The later finding is contradicting to Vismara et al. (2012) who document that junior market firms raise more money in comparison to the main market firms.

3 The Swedish stock markets

In this section we will present the Swedish stock markets as to give some context for readers who are not familiar with it. We also compare the listing requirements on each market and define those relevant for our study.

3.1 History and current structure

Since 1863, the Stockholm Stock Exchange has been the main link between publicly traded companies and investors. Throughout history, the Stockholm Stock Exchange has undergone several changes in ownership and name. In 1998 it was acquired by the OM Group and subsequently renamed to "OM Stockholm Stock Exchange" until 2004 when the company changed its name to OMX AB as a result of a merger between OM and the Helsinki Stock Exchange. This acquisition included the Tallinn, Riga and Vilnius stock exchanges as well. Over the following two years, OMX successfully acquired another two exchanges in the Nordic region, Copenhagen Stock Exchange and Iceland Stock Exchange. In 2008 OMX was

eventually acquired by Nasdaq Inc. and formed what we know today as the Nasdaq OMX Group, or Nasdaq Nordics. As such, Nasdaq owns nearly all of the Nordic stock exchanges. Since the last acquisition by Nasdaq, Stockholm Stock Exchange has been known as Nasdaq Stockholm. (Nasdaq D, 2019)

The Swedish stock exchange market is dominated by two equity markets run by Nasdaq: Nasdaq Stockholm (main market) and First North[7] (junior market). As of 2019, over 330 companies are listed on the main market, including some of the most successful and innovative companies in the Nordic region (Nasdaq A, 2019). As motivated by Nasdaq, there are several benefits of listing on the main market. Generally, a listing on the main market gives greater visibility and access to a broader and more international investor base. Companies listed on the main market also have better analyst coverage, which gives greater exposure to the media and investors. Because of the strict listing requirements, a listing on the main market (especially when transferring from First North) automatically gives companies a stamp of quality and credibility (Nasdaq A, 2019).

The First North junior market is a relatively young market compared to the main market but has already attracted over 350 companies since its inception in 2006, which is more than the main market has over the same period. Unlike the regulated main market, First North is a Multilateral Trading Facility (MTF), meaning it is self-regulated (like the AIM in London). The First North market has lighter listing requirements than the main market, thus allowing smaller and younger companies to enter the capital markets (Nasdaq B, 2019). As First North is run by Nasdaq, it brings credibility and visibility to its companies. Moreover, there is a strong demand for growth companies among investors in the Nordics, making First North very attractive. Despite its small size, First North is one of the most liquid and efficient markets in the Nordics (Nasdaq B, 2019).

As described by Nasdaq, the purpose of the First North market is to serve as a growth platform for small companies and prepare them for a transfer to the main market, which they deem to be superior. To make the transition as smooth as possible, Nasdaq created an additional market segment, Nasdaq First North Premier Growth Market (Premier Segment) that serves as a steppingstone between First North and the main market. The Premier Segment has some

[7] Nasdaq First North Growth Market

additional listing requirements in order to prepare companies for the Main Market, thus creating the best conditions to succeed on the main market after a transfer.

The First North market model can be compared to the "Sequential Segmentation Model" identified by Vismara et al. (2012), where companies are expected to grow in the junior market until they can transfer to the main market. As was noted by Vismara et al. (2012), such a transfer almost never happened in the European markets included in their study. In Sweden, on the contrary, the segmentation model seems to be very successful. Since the formation of the First North market, more than 75 companies listed there have transferred to the Main Market, many of which through the Premier Segment (Nasdaq B, 2019). It should be noted that only 11 of these companies were newly listed companies on the First North after its inception in 2006. The rest of them already had their first listing on a different stock exchange, before they transferred to First North.

In addition to Nasdaq Stockholm, there are two other marketplaces in Sweden where companies can issue equity. The first one is Nordic Growth Market Stock Exchange (NGM), which consists of one regulated market with similar regulations as Nasdaq Stockholm and one MTF market, similar to First North. Spotlight Stock Market (or Aktietorget) is another Swedish MTF market (Global Legal Insight, 2019). Since the inception of First North in 2006, these two markets have gradually lost their popularity and between 2007 and November 2019, 74 companies transferred from either of these two markets to First North.

3.2 Listing requirements

To be admitted on either the Nasdaq Stockholm main market or the Nasdaq First North Growth Market a company must fulfill a set of quantitative and qualitative listing requirements shown in Table 1. As can be seen, these requirements are more stringent for the main market. The lighter requirements on First North are such that medium and small sized companies in their growth phase have the possibility to raise capital and can gain the other benefits of being publicly traded (Nasdaq B, 2019). Firstly, while the main market requires a prospectus, which can be both time consuming and expensive, First North only requires a company description, which is considerably less complex. Further, there are three main quantifiable requirements. The main market requires at least three years of full financial statements, while only half a year is required to be listed at First North. This feature is advantageous for younger companies. Next,

the main market has a market capitalization requirement of minimum EUR 1 million while the First North does not set any requirements. This requirement is linked to a company's size as well as the ownership structure and may be beneficial for companies that do not want to issue a large number of shares or do not need to raise a large amount of capital. The last clear qualitative requirement is also linked to the ownership structure as the main market requires a 25% free-float while the First North requires only 10%. As such, owners of companies that choose to list on First North can retain a higher stake in the company after the IPO if they so wish by issuing fewer shares.

Besides these quantitative requirements there are some differences in organizational requirements between these two markets. The main market has more extensive requirements in regard to a company's management and board of directors as well as requirements related to external supervisors. While the listing process in itself is more extensive and demanding, also the disclosure requirements after the IPO are higher for the main market. In particular, the main market requires quarterly reports according to the IFRS accounting standard compared to semi-annual in any local accounting standard for First North. To ensure compliance, First North requires companies that wish to list on the exchange to engage a Certified Adviser that ensures compliance with all listing requirements. The Certified Advisors have historically ranged from small to large consulting firms and banks and are restricted to at most 10% ownership in the company being listed.

To list on either the Nasdaq Stockholm Main Market or First North, firms must pay an initial listing fee in advance of the IPO and annual fees as long as it remains listed. As can be seen from Table 1, these fees are considerably lower on the junior market. While the initial fixed fee for First North is SEK 150 000, the fixed fee for the main market is SEK 1.1 million (including exchange auditor fee). Additionally, firms that list on the main market are required to pay an initial fee ranging from SEK 200 000 - 500 000 based on their market capitalization. The annual fees on both markets are based on a firm's market capitalization, ranging from SEK 100 000 - 400 000 for the junior market firms and SEK 205 000 - 3.1m for the main market firms. Additionally, the companies must pay fees to the underwriter or Certified Advisor. Listing costs could be another important factor to consider when choosing the IPO market, however, evidence from previous studies are mixed. Doukas and Hoque (2016) show that listing fees play a significant role in firms initial listing decision in the UK, while Corwin and Harris

(2001) don't find any evidence of listing fees' effect on the choice between Nasdaq and NYSE in the US.

Table 1: Listing requirements Nasdaq Stockholm main market versus Nasdaq First North junior market

	Main Market	First North Junior Market
1. Nasdaq Listing Requirements		
Instruments Freely Negotiable	Yes	Yes
Organizational (BoD/Management)	Independent directors Relevant competence and experience Sufficient knowledge of the issuer and stock market regulation	Adequate composition Independent directors
Competence in Exchange Rules	Yes	Yes
Capacity for Information Disclosure	Information capacity required including policies	Information capacity required including policies
Annual Accounts/Operating History	3 years	Sufficient (>6 months)
Minimum Market Value	EUR 1 million	No
Public Holding and Ownership Distribution	25% free float	10% free float
Number of shareholders	500 qualified shareholders, or lower with Liquidity Provider	300 qualified shareholders, or lower with Liquidity Provider
Prospectus	Yes	Company description (or prospectus)
Financial Resources	Documented earnings capacity or sufficient working capital for 12 months	Profitability or sufficient working capital for 12 months
Takeover Rules	Swedish Takeover Act	Swedish Corporate Governance Board Rules
2. External Requirements		
Corporate Governance Code	Yes	No
Non-financial Information and Diversity	Yes	No
Notification of Changes in Major Shareholdings	Yes	No
Market Abuse Regulation	Yes	Yes
3. Company Disclosure Requirements Post IPO		
Inside Information	Yes	Yes
Mandatory Disclosures	According to the Main Market Rulebook	According to First North Growth Market Rulebook
Financial Reporting Standard	IFRS	Local accounting standards
Interim Report	Quarterly: Q4 and Q2 according to IAS43, Q1 and Q3 lighter	Semi-annual
Language	ENG/SWE/FIN/DEN/ICE	ENG/SWE/FIN/DEN/NOR/ICE
4. Listing process		
Pre-review	Advisers	Certified Adviser
Initiation of Formal Listing Process	Physical start-up meeting	Physical start-up meeting
Qualification Review	Exchange Auditor	Exchange
Legal Examination prospectus/Company Description Review	Legal DD by attorney FSA (prospectus)	certified Adviser DD or attorney Exchange (if prospectus, also FSA approval)
Listing Assessment	Listing Committee	Exchange
5. Listing costs		
Fixed Fee	SEK 200 000	SEK 150 000
Exchange Auditor Fee	SEK 900 000	Not applicable
Variable Fee	Based on market cap. Min SEK 200 000 - Max SEK 500 000	Not applicable
Annual fee	Based on market cap. Min SEK 205 000 - Max SEK 3.1 million	Based on market cap. Min SEK 100 000 - Max SEK 420 000

4 Hypotheses

The following section presents the four hypotheses we will examine to answer our research question. Although previous research has studied topics similar to our research question, the following hypotheses are unique for our dataset. As such we contribute with new insight into the decision to list on the junior market whilst being eligible for the main market.

4.1 Ownership

Pre-IPO ownership structure is one of the characteristics that has been proved to have an effect on firms' IPO process. Alavi et al. (2008) divide the ownership into two categories, managerial and non-managerial. Managerial owners can be categorized as pre-IPO "insiders" such as, founders, CEOs, executive directors and senior managers. Non-managerial owners are either major institutional investors, such as private equity firms and venture capitalists, or other private investors. These two types of owners have different motivations and goals when taking a firm public. Alavi et al. (2008) show that managerial owners are more interested in retaining control over the firm also after the IPO. One consequence of issuing shares to the public through an IPO is the immediate dilution of ownership for all pre-IPO shareholders. Therefore, in order to retain control, managerial owners will prefer to issue a lower number of shares to the public. Unlike managerial owners, non-managerial owners are less concerned about losing control over the firm after the IPO. For non-managerial owners, going public is an exit strategy to realize their returns. Hence, non-managerial owners that retain ownership over the company after the IPO are more concerned about the liquidity of the stock such that it is easier to sell it when they want to exit their investment.

Nelson (2003) study the influence of founder ownership on the firms' IPO in depth. Consistent with Alavi et al. (2008), she shows that founders are more interested in the longevity of the company than non-founder owners are. Therefore, founders will try to retain control of the company for as long as possible. She finds evidence that compared to non-founders, founders will both issue fewer shares and are more likely to own a higher percentage of the firm after the IPO in order to retain control.

As discussed in section 3.2 the main and junior market requirements differ in terms of minimum percentage of shares held by owners not related to the firm, referred to as free-float. While on the Nasdaq main market requires a minimum free-float of 25%, First North requires only 10%. When choosing IPO market, the firm's owners might take the free-float requirement into consideration. Linking the findings from previous research regarding managerial ownership to our study, we believe that firms owned by founders and/or CEO are more likely to choose a market with a lower free-float requirement. Hence, we form our first hypothesis as:

Hypothesis 1*: Companies controlled by a managerial owner will prefer to list on First North junior market.*

Unlike firms with managerial owners, firms owned by institutional investors have different intentions with an IPO. Institutional owners pool funds from investors and have strict mandates regarding their investment horizon. After a predetermined period, they have to exit their investment(s). One way is by taking the firm public. As mentioned, when exiting their investments through an IPO, institutions are more concerned about liquidity than loss of control (Alavi et al., 2008). The relationship between institutional investors and stock market liquidity has been examined by many previous studies (e.g. Blume and Keim, 2012; Gompers and Metric, 2001). Both studies show that institutions play an important role in explaining stock market liquidity. Markets with more liquid stocks are usually dominated by institutional investors.

If institutions' initial intention with IPO is to provide more liquidity to the shares and realize their returns, then listing on a more liquid markets will be more attractive to them. As documented by both Gerakos et al. (2011) and Vismara et al. (2012), the post-listing liquidity of the main market firms is significantly higher than for junior market firms. Assuming that Nasdaq Stockholm main market is more liquid than the junior market we develop our second hypothesis:

Hypothesis 2*: Companies controlled by an institutional owner will prefer to list on Nasdaq Stockholm main market.*

4.2 Capital raised

As documented by several studies, the motivation for going public differs across firms and countries. Some firms go public to rebalance their capital structure (Pagano et al. 1998) and others to facilitate future growth through acquisitions (Brau and Fawcett, 2006). For some firms, an IPO is more of a strategic move to increase publicity and broaden the investor base (Chemmanur and Fulghieri, 1999). Even though firms might have different motivations to go public, one intention is usually the same – to raise capital (Lazonick et al., 2017).

One of the market factors that can affect capital raising process is liquidity. It has been shown that stock market liquidity has a positive relationship with stock market performance (Levine, 1997; Subrahmanyam and Titman, 1999). In fact, Subrahmanyam and Titman (1999) explicitly state that market liquidity affects the amount of money that can be raised in an IPO. Kalak et al. (2017) also state that higher liquidity has positive effects on stock prices. A higher price consequently means a larger amount of capital raised. Therefore, it is reasonable to assume that firms that want to raise a large amount of money will aim for a market with greater liquidity. Moreover, Granier et al. (2019) find that IPOs on the junior markets are associated with a smaller amount of money raised, which confirms the alternative argument. Firms that do not aim to raise a large amount of money through their IPO will not care as much about the market liquidity. These empirical findings lead us to our third hypothesis:

Hypothesis 3: *Companies that aim to raise more capital will prefer to list on Nasdaq Stockholm main market.*

4.3 Profitability

While there are many benefits from going public, the IPO process is expensive. Lux and Pead (2018) study the decline in small-firm IPOs in the US and discuss potential causes. They argue that exchange regulation reforms for publicly traded companies has made it less attractive for small firms to pursue an IPO. Moreover, the high listing costs represent a high proportion of a small company's revenue, which can lead to financial constraints after going public. Albornoz and Pope (2004) study the IPO determinants in the UK setting. According to their paper the decision of going public depends on the firm size and profitability. Smaller and less

profitable firms are less likely to go public, indicating that these firms cannot generate sufficient funds to finance the pre- and post-IPO costs.

As we identified in section 3.2, the listing costs are considerably higher on the Swedish main market compared to the junior market. Just the fixed listing costs alone are almost SEK 1 million higher on the main market than on the junior market. Therefore, it is expected that firms that want to go public, but do not have sufficient funds for an IPO on the main market will choose to list on the junior market. Consequently, we propose the fourth and final hypothesis:

Hypothesis 4*: Non-profitable companies will prefer to list on First North junior market.*

5 Methodology

We want to study whether type of owner, profitability and amount av capital raised affect firms' choice of IPO market. This means our dependent variable is "IPO market" i.e. companies that list on First North even though they are eligible to list on the main market and companies that list on Nasdaq Stockholm main market. When the dependent variable can take on only two values (main market = 0, First North firms eligible for the main market = 1) it is a binary variable. Considering the nature of the dependent variable, we use probit regression and linear probability model (LPM) in our analysis. Both regressions measure the probability of success i.e. dependent variable y = 1, given changes in the independent variables. We also add a third outcome (First North firms not eligible for the main market = 2) and use multinomial logit regression to study the differences between the three groups of companies.

5.1 Probit Regression Analysis

The dependent variable in a probit regression is strictly bounded between 0 and 1, which ensures that estimated response probabilities are also strictly between 0 and 1. In predicting probabilities, the probit model uses a non-linear maximum likelihood estimator instead of the standard OLS estimator. The primary goal of the probit model is to measure the effect of a change in one of the independent variables on the probability of success. However, interpretation of estimated coefficients in probit regressions is not completely straightforward. The coefficients in probit regressions can only say if the relationship is positive or negative and

whether or not it is significant. Therefore, in addition to the probit regressions, we estimate the marginal effects to understand how much the conditional probability of the dependent variable changes when one of the independent variables change, ceteris paribus (Wooldridge, 2016).

5.2 Linear Probability Model

As in standard linear regression, LPM uses OLS estimator to estimate the regression model, therefore, we refer to it as OLS regression as well. LPM assumes that the probability of success is a linear function of the independent variables. Since the dependent variable can take on only two values, 0 and 1, the coefficients in LPM are interpreted as a change in the probability of success when one of the independent variables change, ceteris paribus. LPM is commonly used due to its simplicity and easy interpretation. However, there are some technical drawbacks with LPM compared to other methods for binary dependent variables. Since LPM is a linear function of the independent variables, the predicted probabilities are unbounded. This means that predicted probabilities from LPM can be greater than 1 or less than 0, which does not make sense. Another drawback of the LPM is heteroscedastic residuals. In order to minimize the problem of heteroscedasticity, it is important to estimate the regression with robust standard errors (Wooldridge, 2016). Therefore, we apply robust standard errors in our OLS regression. We will use LPM to test the robustness of our results from the probit regressions.

5.3 Multinomial Logistic Regression

While in our LPM and probit regressions the dependent variable has two outcomes, main market firms and First North firms eligible for the main market, in multinomial logistic regressions the dependent variable can have more than two outcomes. We add a third outcome, First North firms not eligible for the main market and use multinomial logistic regression to study whether these three groups attract firms with different characteristics. The multinomial logistic regression is used in cases in which the dependent variable is not of ordinal scale (Borooah, 2002). Compared to other research that has used ordered probit regression we find multinomial logistic regression to be more suitable as we cannot order our three outcomes in any natural way. One limitation of the multinomial logistic regression is that it is more sensitive to sample sizes (De Jong et al. 2019). To run the regression, we assign the following numbers to each category: Main market firms = 0 (reference group), First North companies eligible for the main market = 1 and First North companies not eligible for the main market = 2.

5.4 Evaluation of Regression Models

To evaluate our regression models, we mainly look at the significance of estimated coefficients. The significance level we use in this thesis is 10%. To evaluate OLS regression we also look at F-statistic and Adjusted R^2. A significant F-statistic show that all of the estimated coefficients in the regression model are significantly different from zero. Adjusted R^2 is a measure of how well the independent variables describe the variation in the dependent variable. Corresponding F-statistics for the probit regression is Chi-square statistics. One of the shortcomings with probit is the lack of a model evaluation method that is as good as OLS Adjusted R^2. To measure the probit model performance several Pseudo R^2 have been proposed. In our thesis we use the McFadden R^2, which is the most common approach. In our probit regressions we also look at percent correctly predicted classifications, which is another evaluation method for this kind analysis (Wooldridge, 2016).

6 Data

In this section we describe how we collect our data and determine the appropriate sub-samples. Then we present the variables used to answer our research question and associated hypotheses. The variables are divided into independent and control variables. The independent variables are used to test our hypotheses proposed in section 4. Control variables are also included in the regressions as independent variables, but the aim of these variables is to avoid the omitted variable bias and to compare our results to previous studies.

6.1 Data Collection

The sample consists of IPOs to Nasdaq Stockholm main market and First North between January 2007 and October 2019. First North Premier Segment will not be part of our research as most of the companies there transferred from other exchanges and during our period only ten companies has their IPO on this market. As First North was opened late 2006, we set 2007 as the beginning year due to data availability. The initial data sample was forwarded by an employee at Nasdaq Nordics who shared one excel file for each year throughout the sample period. The files describe all listing changes during the year, as well as brief comments on the kind of listing change. For some years, these comments were incomplete and had to be filled out manually by searching on Google and on the Nasdaq webpage. Nasdaq had included market values and money raised for certain years, but as this information was incomplete for other

years it was not included in the final dataset. From the excel files we sorted out the listing changes related to IPOs and as such, re-listings, spin-offs, dual-listings and Seasoned Equity Offerings (SEOs) are excluded from the sample.

Over the period, a total number of 336 IPOs were undertaken, of which 249 were to the junior market and 87 to the main market. Six of these IPOs are excluded from our sample as the companies in question are investment companies such as venture capital, private equity firms and buyout funds and thus have considerably different corporate actions and funding structure. This is consistent with the approach in previous research and gives a better comparison sample to such research (Doukas and Hoque, 2016). Another 47 IPOs are excluded as we could not find the prospectuses for these companies. After which, the total sample size consequently amounts to 283 companies in which 204 companies listed on the junior market and 79 companies listed on the main market.

The reason for why no previous research has examined the impact of the type of largest shareholder might be due to the tedious process of collecting such data. The data can be extracted from the companies' prospectuses which are issued in advance of the IPOs. Every prospectus contains a table of the largest shareholders and from there we find the type of the largest shareholder pre-IPO. Further, the prospectuses also contain all financial data we need for our other independent variables as well as control variables. Lastly, compared to databases, the prospectus indicates a company's intentions regarding shares issued and listing price which gives unique insight to the IPO process. There are two websites that collect these prospectuses, the Swedish Financial Supervisory Authority and another independent website.[8] We use both websites as neither one has a complete archive. We also collect the companies' industry specifications from Bloomberg according to its ten-sector classification.

6.2 Sub-sample Classification

The general aim of this thesis is to examine which firm characteristics that impact the listing choice between the main and the junior market. As such, the first task is to identify the companies that choose the junior market even though they were eligible to list on the main market. Two quantifiable listing requirements separate the main market from the First North.

[8] https://www.fi.se/sv/ and https://ipohub.io/

The main market requires 1) a minimum of EUR 1m market capitalization and 2) a minimum of three full-year financial statements at the time of the IPO. There is also one listing requirement connected to the free-float. This requirement, contrary to the other requirements, can be met by the company if it offers more shares in the IPO. We will therefore not use it in the creation of our sub-sample classes.

Table 2: Sub-sample based on the listing requirements for the main market

	FN firms not eligible for MM	FN firms eligible for MM	MM firms
Companies with less than 3 full F/S	59	0	0
Companies with less than EUR 1m market value	0	0	0
Number of IPOs	59	145	79

Note: FN = First North, MM = main market

If we assume that the IPOs in our sample were fully subscribed and achieved the lowest target price stated in their prospectuses[9], none of the companies would have a market capitalization below EUR 1m after their IPO. In fact, only two companies would have market cap below EUR 2m, which is not that surprising as a market capitalization of EUR 1m is very low. However, several companies that listed on the junior market did have a sufficient number of financial statements to list on the main market. As such we categorize the 283 IPOs into three categories, which can be seen in Table 2. Companies listed on First North which did not fulfil the listing requirements for the main market (59 companies), companies listed First North although they fulfilled the listing requirements for the main market (145 companies) and companies listed on the main market (79 companies).

6.3 Independent Variables

Ownership Dummies

To test hypotheses 1 and 2 we create dummy variables for each type of ownership. The process we use is to look at the list of major shareholders in each prospectus. Then we check if the largest shareholder is either the company's founder or CEO which is always stated in the prospectus. If so, these companies are assigned a dummy for managerial owner. If not, we check whether the largest shareholder is an institutional investor and create a dummy for institutional owner. In this way we end up with three different ownership classifications. The first one is managerial owner which we classify as either founder or CEO. The second one is institutional owner such as private equity and venture capital firms. Companies that have neither a

[9] Some companies indicate a range rather than an explicit listing price

managerial nor an institutional owner are normally owned by a parent company, which does not fit into any of our hypotheses.

Capital Raised

In hypothesis 3 we argue that companies aiming to raise more capital will list on the main market. To test this hypothesis, we use the amount of money raised through the IPO. This is simply the primary shares in the offer multiplied by the target listing price, which are both found in the companies' prospectuses. We note that this number might deviate from the actual amount of money raised, but since our hypothesis is related to the money intended to raise, we argue it is better than using the actual amount of money raised. Although the money raised may be correlated to the size of the company, we did not find the correlation to be too high.[10] To avoid large outliers that would unduly influence the results we transformed this variable by taking natural logarithm of it.

Profitability

Due to the large listing expenses on the main market we argue that unprofitable firms will prefer the junior market where such costs are substantially lower. There are a number of ways to measure profitability, the most common measures in accounting are: return on assets, net profit margin, net income, EBITDA and EBIT. EBITDA measures profitability from the core operations of the company prior the impact of its capital structure. Becker-Blease et al. (2010) argue that EBITDA is one of the best measurements of profitability because it is often used as a proxy for operating cash flows. Therefore, to test our fourth hypothesis we use EBITDA for the year prior to the IPO as a measurement of profitability. We create a dummy for companies with negative EBITDA which would imply that the company's operations were not profitable.

6.4 Control Variables

Firm Size

We argue that the choice of market is dependent on the size of the company. As such, larger companies should choose to list on the main market and smaller on the junior market, which is consistent with Doukas and Hoque (2016) findings. One reason for why size might have an impact could be linked to the reporting requirements on the two exchanges. The main market

[10] See Correlation matrix in Appendix A1 and VIF test in Appendix A2

requires strict disclosure and detailed reporting for the companies. Smaller companies might not have this reporting system in place or might not want to give up such information to the general public, which could lead them to prefer the junior market. Being of larger size may mean that this reporting is already in place, meaning that fewer resources have to be dedicated for these requirements. Being larger may also be beneficial in attracting management with better experience and thus being better suited for running a company listed on the more complex main market. Further, being larger may indicate that revenues are higher such that the listing costs are smaller relatively to the revenues. Lastly, the size is also directly related to the listing requirements of minimum market capitalization such that small firms may find it difficult to overcome this requirement. However, we did not find this to be a limiting factor in Section 6.2.

The firm size can be measured in several ways. Total assets, total sales, market value and number of employees are some of the most common measurements used in the literature (Hart and Oulton, 1996). There is no obvious choice as all of them have their pros and cons. Hart and Oulton (1996) suggest that the choice should be decided based on data availability. Dang et al. (2017) argue that different size measures capture different aspects of the firm size. For instance, market capitalization is a forward-looking measure, reflecting equity ownership. Total assets, on the other hand, measure firms' total resources. They further argument that even though the differences between the measurements are marginal, the choice could be motivated by the correlation between the variable and other variables in the regression. Since we only have access to pre-IPO data, we can only make an estimate of a company's post-IPO market value, but the true value could diverge significantly from this estimate. Further, total assets is slightly less correlated with our independent variables than our estimated market value and as such we use total assets as a proxy for firm size[11]. To avoid large outliers that would unduly influence the results we transformed this variable by taking natural logarithm of it.

Company Age

We speculate that younger companies may prefer to list on the junior market, which is also consistent with the findings of Doukas and Hoque (2016). Younger companies may have less experienced management that does not feel comfortable with the higher disclosure requirements and greater investor insight on the main market. Further, Corwin and Harris (2001) document firm clustering, rationalized by companies wanting to list on the same exchange as their peers.

[11] See Table A1 in the Appendix for correlation comparison

If this is not only true for industries but also true for firm age, this would imply that young companies would cluster on the junior exchange. Conversely, there might be investor clustering, which implies that investors look for certain types of companies on specific exchanges. In such way, if investors look for young companies on the junior market, it would induce young firms to list on the junior market. A company's age is determined by taking the difference between the incorporation year and the listing year. This variable is also transformed by taking the natural logarithm.

Industry Dummies

As stated, Corwin and Harris (2001) find that companies tend to list on the exchange where their industry peers are listed, a phenomenon also referred to as industry clustering. Industry fixed effects between the junior and main market were also found by Doukas and Hoque (2016). We believe this to be true for the Swedish market as well and control for it with dummies for N-1 industries in the Bloomberg 10 sector classification. To test for these effects, we run our regression both with and without industry dummies to investigate whether the effects are within or across industries.

Hot and Cold Market Dummies

Finally, to control for time effects we also include time dummies, indicating whether the IPO was completed during a hot or cold market period. Extensive research has been conducted to explain the phenomenon of hot and cold IPO markets. A hot market appears during a booming economy and characterized by high volume of new offerings. Conversely, a cold market is during a recession and characterized by much lower IPO activity (Ritter, 1984). Helwege and Liang (2002) investigate the characteristics of firms that go public during hot and cold markets. They find that firms that go public during hot periods are characterized by lower earnings, less R&D and more fixed assets. These results give us a reason to believe that main and junior markets attract different types of firms during hot and cold markets and we therefore control for this as well. During our sample period Sweden was in a recession during 2008 and 2009 following the global financial crisis. In the following years the country re-bounced and went into a boom in 2017, which ended in 2019 (European Commission, 2019). As such we create cold market dummies for IPOs in 2008 and 2009 and hot market dummies for IPOs in 2017 and 2018 to control for in our analysis.

7 Descriptive Statistics

This section presents summary tables of our sample in order to evaluate the differences between the three categories identified in the previous section. To be clear, the data is divided into First North firms not eligible for the main market, First North firms eligible for the main market and firms listed on the main market.

7.1 Overview of the IPO market

Table 3 offers an overview of the development of IPOs in the three categories over our sample period. Several interesting findings appear. First, one can notice the drop in the number of IPOs after the onset of the financial crisis from 2008. The low number of IPOs sustained for all three categories and lasted until approximately 2014, although the recession in Sweden only lasted until 2009 (European Commission, 2019). Subsequently, the number of IPOs rapidly increased in the following years and remained high until 2018. Regardless of market fluctuations, First North firms eligible for the main market has been the largest category in terms of the number of IPOs. Combined with First North firms not eligible for main market, the First North in total has been considerably more popular than the main market attracting more than twice the number of IPOs.

Table 3: Sample descriptive statistics

	Number of IPOs per year			Average capital raised (SEKm)			Average market value (SEKm)		
	FN firms not eligible for MM	FN firms eligible for MM	MM firms	FN firms not eligible for MM	FN firms eligible for MM	MM firms	FN firms not eligible for MM	FN firms eligible for MM	MM firms
Year									
2007	10	13	3	156.14	21.09	25.00	255.15	129.76	1797.00
2008	0	5	3	-	25.87	139.20	-	226.77	262.93
2009	1	0	0	235.20	-	-	589.20	-	-
2010	1	2	3	25.00	34.80	191.83	40.50	159.50	1605.70
2011	1	0	4	25.20	-	49.33	92.40	-	1184.00
2012	1	1	0	68.00	15.00	-	227.80	75.00	-
2013	2	2	1	78.00	21.40	550.00	477.00	69.55	2310.00
2014	7	14	12	306.37	72.36	549.89	602.50	307.19	3509.08
2015	9	22	17	71.94	84.13	781.77	287.54	821.45	5617.54
2016	12	22	12	96.31	71.63	213.68	350.71	598.40	3495.32
2017	13	36	14	77.36	89.76	415.64	302.96	397.89	2538.01
2018	1	18	7	50.40	103.32	376.39	170.40	557.78	2525.91
2019*	1	10	3	35.51	60.09	331.83	104.94	296.51	2503.67
Sum	**59**	**145**	**79**	**120.51**	**73.54**	**426.80**	**333.61**	**456.69**	**3269.85**

*Only until November
Note: FN = First North, MM = main market

As one might expect, the main market firms have raised the highest average amount of money, but less obvious is that the First North firms eligible for the main market raise considerably less than the First North firms not eligible for the main market. This may be because companies that choose not to list on the main market want to retain more control over the company and consequently issue fewer shares. This makes sense as the First North has a much lower free-float requirement. On the other hand, First North firms that are not eligible for the main market are smaller in terms of market value. They may therefore be in larger need to raise capital to support growth. As such, companies listed on the First North and eligible for the main market have a larger number of shares outstanding prior to the IPO, which would result in a larger market value after the IPO. One question that arises is why First North firms that are eligible to list on the main market choose to go public if they are not interested in raising as much money. The reason is likely that they want to benefit from the improved visibility and liquidity of being publicly traded or any of the other benefits of being public, described in Section 3.1.

7.2 Independent variables

Now we look at the differences in firm-specific characteristics that were chosen as our independent variables. We run the same difference tests as Doukas and Hoque (2016) to compare our three sub-samples. We compare the proportion of managerial and institutional owners as well as proportion of negative EBITDA by running a two-sided proportion test. The mean differences in capital raised are studied by running a two-sided t-test and for median differences we use two-sided Wilcoxon median test. All proportion, mean and median tests are done between the main market firms against the two other categories.

Table 4: Differences in independent variables, tested against the main market firms

	FN firms not eligible for MM		FN firms eligible for MM		MM firms	
Largest owner	Number	Proportion	Number	Proportion	Number	Proportion
Managerial owners	36	61.0%***	55	37.9%***	13	16.4%
Institutional owners	15	25.4%***	67	46.2%***	58	73.4%
Capital raised	Mean	Median	Mean	Median	Mean	Median
Capital raised	120.5***	30**	85.6***	45.1***	432.3	277.3
Profitability	Number	Proportion	Number	Proportion	Number	Proportion
Negative EBITDA	33	55.9%***	32	22.1%**	8	10.1%

Note1: ***p < 0.01. **p < 0.05. *p < 0.1
Note2: FN = First North, MM = main market

As can be seen in Table 4 the proportion of managerial owners for First North firms is significantly higher than for the main market firms. This is consistent with our first hypothesis, companies that list on First North have a higher degree of managerial owners than companies on the main market. While Vismara et al. (2012) only tested for proportion of VC backed firms, we also include other institutional investors and find significant differences between the main and junior markets. The firms listed on the main market have a significantly higher proportion of institutional owners, consistent with our second hypothesis. Further, companies that list on the main market raise considerably more capital compared to those that list on First North. The mean (median) money raised by the First North firms not eligible for the main market is SEK 120.1 (30.0) million, First North firms eligible for the main market is SEK 85.6 (45.1) million, whereas the corresponding amount of money raised by main market firms is SEK 423.3 (277.3) million, which is on average five times more than First North firms eligible for the main market. The average amount of money raised by First North firms is significantly smaller compared to the main market firms, which is consistent with our third hypothesis and also earlier findings by Granier et al. (2019). Lastly, the proportion of firms with negative EBITDA is significantly higher for companies on First North, which supports our fourth hypothesis.

7.3 Control variables

We also compare company characteristics that were chosen as control variables. We use the same mean, median and proportion tests as for our independent variables. The results are presented in Table 5.

Table 5: Differences in control variables, tested against the main market firms

	FN firms not eligible for MM		FN firms eligible for MM		MM firms	
Company characteristics	Mean	Median	Mean	Median	Mean	Median
Total assets	933.9***	23.5***	165.02***	39.5***	4882.3	1821.3
Age	2.2***	2***	11.1***	10***	28.5	16
IPO timing	Number	Proportion	Number	Proportion	Number	Proportion
Hot market	26	44.1%	76	52.4%	33	41.8%
Cold market	1	1.7%	5	3.4%	3	3.8%
Industry	Number	Proportion	Number	Proportion	Number	Proportion
Communications	3	5.1%	10	6.9%	4	5.1%
Consumer Discretionary	6	10.2%*	21	14.5%	19	24.1%
Consumer Staples	2	3.4%	3	2.1%	1	1.3%
Energy	3	5.1%	7	4.8%	0	0.0%
Financials	6	10.2%	7	4.8%*	10	12.7%
Health Care	17	28.8%	35	24.1%	19	24.1%
Industrials	8	13.6%	27	18.6%	20	25.3%
Materials	1	1.7%	3	2.1%	1	1.3%
Technology	12	20.3%**	32	22.1%***	4	5.1%
Utilities	1	1.7%	0	0.0%	1	1.3%

Note1: ***p < 0.01. **p < 0.05. *p < 0.1
Note2: FN = First North, MM = main market

Consistent with previous research, companies listed on the junior market are significantly younger and smaller than companies listed on the main market, which indicates that First North has been successful in attracting the target group of companies. The mean (median) total assets for the FN firms eligible for the main market is SEK 933.9 (23.5) million. The large difference between the mean and the median indicates that the data is skewed to the right. Compared to the First North firms not eligible for the main market, First North firms eligible for the main market have somewhat lower total assets, SEK 165.02 (39.5) million. Both First North groups have significantly lower total assets compared to the main market of SEK 4882.3 (1821.3) million. The mean (median) age of the First North firms not eligible for the main market and First North firms eligible for the main market is 2.2 (2.0) years and 11.1 (10.0) years respectively. The low deviation between mean and median indicates that the age for both groups is approximately normally distributed. However, the mean (median) age for the main market firms is 28.6 (16.0) years, which is significantly higher than for FN listed firms.

Further, we cannot find a significant difference in IPO proportion during hot and cold markets between our three sub-samples. However, we do find some differences in the industry distribution. First and foremost, the proportion of technology firms is substantially larger on the junior market. This could suggest that there is some industry clustering, which is likely because investors that are interested in technology companies look for them at the junior market. Conversely, it could also be because technology companies prefer to list on the same exchange as their peers. This finding is consistent with Corwin and Harris (2001) who show that in the US, most of the technology firms are clustered on the Nasdaq stock exchange. This could also be a result of the junior market often being thought of as a platform for technology companies, which has previously been one of its main purposes in other countries (referred to as sectorial markets by Vismara et al., 2012). There are also some differences in Consumer Discretionary and Financials, but it is only significant at the 10% level. This difference could also be due to a small number of companies in these industries.

8 Empirical Analysis

Table 6: Regression results

Panel A: Coefficient estimates from probit and multinomial logit regressions

	Probit (MM = 0, FN firms eligible for MM = 1)						**Multinomial logit** (MM = 0, FN firms eligible for MM = 1, FN firms not eligible for MM = 2)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Managerial dummy	0.815***				1.055***	0.979***	1.463***	-1.551
Institutional investor dummy		-0.676***						
log (Capital raised)			0.092		0.085	0.046	0.076	-1.722
Negative EBITDA dummy				0.576*	0.873**	0.655**	0.915*	-1.059
log (Age)	-0.309	-0.264	-0.234	-0.189	-0.058	-0.014	-0.013	-268.946*
log (Total assets)	-1.007***	-1.023***	-1,012***	-0.961***	-0.873***	-0.718***	-1.468***	-8.245
Hot market dummy	0.178	0.167	0.170	0.242	0.151	0.135	0.242	3.976
Cold market dummy	0.104	0.185	0.452	0.380	-0,097	-0.242	-0.397	-5.405***
Industry dummies	Yes	Yes	Yes	Yes	Yes	No	No	No
Constant	-2.844	-2.009	-2.311	-2.256	-3.903	1.345**	3.006***	190.686
N	224	224	224	224	224	224		
McFadden R2	0.41	0.41	0.38	0.39	0.45	0.38		
Chi-square	11.3 (3)***	9.3 (3)**	2.9 (3)	4.4 (3)	17.9 (5)***	69.2 (5)***		
Correctly predicted	84 %	83 %	87 %	86 %	83 %	83 %		

Panel B: Marginal effects from probit regression

	Probit marginal effects (MM = 0, FN firms eligible for MM = 1)				
	(9)	(10)	(11)	(12)	(13)
Managerial dummy	0.264***				0.307***
Institutional investor dummy		-0.227***			
log (Capital raised)			0.022		0.016
Negative EBITDA dummy				0.147*	0.216***
log (Age)	-0.073	-0.064	-0.069	-0.058	-0.05
log (Total assets)	-0.299***	-0.304***	-0.307***	-0.276***	-0.249***
Hot market dummy	0.064	0.059	0.049	0.054	0.047
Cold market dummy	-0.100	-0.063	0.036	0.037	-0.088
Industry dummies	No	No	No	No	No

Note 1: ***p < 0.01. **p < 0.05. *p < 0.1
Note2: FN = First North, MM = main market

Table 6 summarizes our regression results. In Panel A are the coefficients from our probit analysis (regressions 1 through 6) and from the multinomial logit (regression 7 and 8). Regressions 1 through 4 are used to test each hypothesis individually, with the same control variables. Regression 5 is a probit regression with all independent variables, while regression 6 is similar but does not control for industry fixed effects. The corresponding OLS regressions

can be found in Table A3 in the Appendix. Panel B presents the marginal effects from our probit regressions (regressions 9 through 13). None of the marginal effects regressions have industry dummies as this causes the "incidental parameters problem" which can lead to inconsistent estimators (Beck, 2015). Neither of the probit regressions have an institutional investor dummy as this is too highly correlated with the managerial dummy[12]. All data is winsorized at the 1% level to limit extreme values in the statistical data and reduce the effect of spurious outliers.

Ownership

The results from our regressions support our hypotheses that companies whose largest shareholder is managerial prefer the junior market whilst those with an institutional investor prefer the main market. The coefficient for managerial owner dummy is positive and significant in regressions 1, 5, 6 and 7. Meanwhile, the institutional owner dummy in regression 2 is negative and significant. These findings are true for the OLS regressions as well, which can be found in Table A3 in the Appendix. From the marginal effects in Panel B, regression 9 it becomes apparent that if the largest owner is managerial then the company is 26.4% more likely to list on the junior market. On the other hand, the managerial effects from regression 10 suggest that when the largest owner is an institutional investor it is 22.7% less likely to list on the junior market. The overall results suggest that our first and second hypotheses are true.

Capital raised

In our third hypothesis we argue that firms aiming to raise more money are more likely to list on the main market. What is interesting is that the coefficient in regressions 3, 5 and 6 is positive. This is contradicting to our hypotheses since we expected that firms aiming to raise more capital will prefer to list on the main market, not junior. However, none of the probit regressions find this to be significant, indicating that the choice of the IPO market is not affected by the amount of capital raised. In section 4.2 we argue that market liquidity has an effect on amount of money raised. Nasdaq claims that liquidity is superior on the main market, which should attract larger IPOs. As this does not seem to be the case, it may be an indication that the creation of this junior market has been truly successful in creating a liquid market. We note that while other studies have found significant differences in capital raised between the main and junior market, those papers merely looked at the difference between mean and median money

[12] See Table A1 in the Appedix for correlations

raised without running a regression (Vismara et al., 2012; Granier et al., 2019). While we also find differences in section 7.2, our probit regression shows no effect on the dependent variable after controlling for other variables. However, when testing for the third hypothesis individually with OLS the coefficient is positive and significant at 10%, suggesting that 1% increase in capital raised increases the probability of listing on the junior market by 2.5% (Table A3, regression 3). The impact of this variable on the probability of choosing the main market disappears when including other independent variables. Combining the results from both probit and OLS regressions we conclude that we cannot find evidence for our third hypothesis.

Profitability

Similar to ownership structure, whether a company is profitable or not seems to be important in choosing which market to list on. This dummy is significant and positive in all regressions meaning that if a company has negative EBITDA, it is more likely to list on the junior market. In fact, the negative EBITDA dummy is positive and significant at 10% significance level in regression 4. The coefficient becomes more significant when including other independent variables in regression 5. From the marginal effects it can be seen that when EBITDA is negative, a firm is 14.7% more likely to list on the junior market. This probability increases to 21.6% and becomes even more significant when we include other independent variables in regression 13. This result is similar to the result from OLS regression, when including all of the independent variables (Table A3, regression 5). This result is consistent with our argumentation regarding the relationship between listings costs and firms' profitability, in section 4.3. The initial listing costs are much lower for the First North junior market. Hence, non-profitable firms that want to raise new capital will list on the less expensive market, which confirms our fourth hypothesis.

Control variables

We also controlled for the company size and age and our results are somewhat different from the findings of previous research. The size coefficient (total assets) is negative and significant in all probit and OLS regressions, indicating that larger companies are less likely to list on the junior market. This can be linked to the disclosure and reporting requirements, as discussed in section 6.4. Smaller companies might not be ready for total transparency at such early stage, therefore choose to list on an exchange with lighter requirements. In the multinomial logit regressions, we compare First North firms eligible for the main market to the firms on the main market (regression 7) and First North firms not eligible for the main market

to the main market firms (regression 8). The results from multinomial logit regression 7 are consistent with the results from probit and OLS regressions. However, when comparing firm size of companies not eligible for the main market in regression 8, the total asset coefficient is not significant. This suggests that this firm characteristic does not affects firms' initial public decision in this group. The insignificance of this variable (and other independent variables) in regression 8 could also be due to a small number of observations and large variation within this group, which is as stated one of the downsides of using a multinomial logistic regression.

Age, on the other hand, is not significant in any of our regressions, besides regression 8. The insignificance of the age variable means that in Sweden a firm's age is not likely to affect the initial listing decision. This finding is consistent with Corwin and Harris (2001) who find no evidence that younger firms are more likely to choose Nasdaq over NYSE. The results from multinomial logit regression 7 are consistent with the results from other regressions. However, in regression 8 the age coefficient becomes significant at 10% significance level. This is not surprising as FN firms not eligible for the main market are firms that do not have three full years of financial statements, as pointed out in section 6.2. This consequently means that firms that are younger than 3 years will list on the junior market, not because they want to, but because they have to. The large difference in firm age was also confirmed earlier in Table 5.

For the time-effects, the crisis dummy is only significant in regression 8 and predicts that during a crisis firms that are not eligible for the main market are less likely to go public on First North. This makes sense as these are typically younger companies which means that going public is a large investment and commitment. Further, they might be considered riskier and would consequently abstain from listing due to potential de-listing costs. However, this is only significant in one regression where we compare First North firms not eligible for the main market, which is none of the main sub-samples of our research. The results from probit regressions with and without industry dummies (regressions 5 and 6) are very similar, indicating that the effects are across industries, not within.

Evaluation of regression models

To evaluate the fit of the probit model, we look at McFadden R^2, percent correctly predicted and chi-square statistics. All three measurements in model 5 and 6 indicate a god fit of the model. The chi-square statistic is significant, meaning that all of the coefficients are significantly different from zero. McFadden R^2 is between 0.38 and 0.45 which is a fairly high

value for a probit regression. The percentage of correctly predicted outcomes is 83% which is a high number indicating good performance of our model. In the OLS regression case, the F-statistic is also significant meaning all of the coefficients are different from zero[13].

9 Conclusion

Since its inception in 2006, the Nasdaq First North junior market has attracted more companies than the Nasdaq Stockholm main market and proved to repeat the popularity of other junior markets. Out of the 204 IPOs to the junior market in our sample, 145 companies did in fact fulfill the requirements to list on the main market but chose to list on the junior market. This is interesting as the main market is considered to be a superior market to be listed on. Our analysis shows that companies that choose the junior market are significantly smaller in terms of total assets. However, a firm's age is not significant, suggesting that age does not play any significant role in their choice of IPO market in Sweden. In this study we find support for three of our four hypotheses. Firstly, we find that ownership is an important characteristic in firms' initial public decision. While firms controlled by managerial owners are more likely to list on the junior markets, firms controlled by institutional owners are more likely to choose the main market. We also find that non-profitable firms (firms with negative EBITDA) list on the junior market. However, we cannot find evidence for our last hypothesis that the amount of money aimed to raise through the IPO affects the choice of market. The evidence from our study suggests that firms initial listing decision is not limited to the exchange market's listings requirements, but also depends on other characteristics. This finding gives a reason for other researchers to further investigate this topic.

Whilst our study is limited to examine the firm characteristics that are associated with companies that choose to list on the First North even though they fulfill the requirements for the main market, several alternative topics have come to our mind during the process. We encourage future studies to include other Nasdaq Nordics exchanges as well as the Norwegian stock market to examine differences that might exist between Nordic countries. In our study we comment on the impact of listing costs, hence, it would be interesting to investigate the effect of initial listing costs on companies' choice of an IPO market. Post-IPO performance of junior markets, both in terms of share returns and liquidity, have been studied in other countries. This

[13] See Table A3 in the Appendix for OLS regression results

would be an interesting topic to build upon our findings, especially since we speculate that Firth North has become a very liquid market. A last suggestion for the future research is to investigate whether corporate actions such as M&A, SEOs and bond issues are connected to firms' choice of an IPO market.

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Appendix

Correlations

Table A1 present a correlation matrix of our independent variables. High correlation between independent variables could cause multicollinearity. Multicollinearity reduces the predictive power of the model and coefficients become less stable (Wooldridge, 2016). In the table we have highlighted the correlations above 0,5 and below -0,5 in bold, which would imply high correlation. To test the multicollinearity of our sample we use VIF test as the results from Table A2 show little multicollinearity. A VIF above 10 indicates very high correlation, usually 0.9 or higher (Curto and Pinto, 2010). As can be seen, our values are way bellow 10, which indicates very low correlation among independent variables.

Table A1: Correlations between independent and control variables

	Managerial dummy	*Institutional dummy*	*Money raised*	*Negative EBITDA dummy*	*Market capitalization*	*Total assets*	*Age*
Managerial dummy	1						
Institutional dummy	**-0.879**	1					
Capital raised	-0.178	0.201	1				
Negative EBITDA dummy	-0.019	0.016	-0.136	1			
Market capitalization	-0.283	0.312	**0.530**	-0.286	1		
Total assets	-0.156	0.177	0.266	-0.253	**0.676**	1	
Age	-0.177	0.203	0.065	-0.255	0.331	0.304	1

Table A2: VIF-test for multicollinearity

Variable	VIF value
Managerial dummy	1.24
Capital raised	1.21
Negative EBITDA dummy	1.67
Age	1.13
Hot dummy	1.14
Crisis dummy	1.33

Probit regression model

The formal probit model is given by:

$$P(Y_i) = P(Y_i = 1|X_{1i}, X_{2i}, X_{3i}) = \Phi(\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i})$$

where Y is the dependent variable taking value 1, X_j are the independent variables, Φ is a function for normal distribution. β_j is the coefficient that indicates the increase in probabilities when positive and decrease in probabilities when negative.

Based on our variables the probit regression looks like this:

$$P(JuniorMarket = 1) = \Phi(\beta_0 + \beta_1 Managerial\ Dummy + \beta_2 Institutional\ Dummy + \beta_3 Capital\ Raise + \beta_4 Neg.EBITDA\ Dummy + \beta_5 Age + \beta_6 Total\ Assets + \beta_7 Hot\ Dummy + \beta_8 ColdDummy + \beta_{9-17}\ Industy\ Dummy)$$

where the dependent variable is IPO market, taking on value 1 when First North junior market.

Linear Probability Model

In the linear probability model the response probability is linear in the parameters β_j. Each β_j coefficient measures the change in the probability of success when X_j changes, ceteris paribus:

$$\Delta P(Y = 1|X) = \beta_j \Delta X_j$$

When estimating β_j, the LPM uses OLS estimator and the estimated equation looks the same as for the standard linear regression:

$$\hat{Y} = \widehat{\beta_0} + \widehat{\beta_1} X_1 + \cdots \widehat{\beta_k} X_k$$

where $\hat{Y}$ is predicted probability of success, $\widehat{\beta_0}$ is predicted probability of success when each X_j is set to zero, which is not always interesting. The slope $\widehat{\beta_1}$ measures the predicted change in the probability of success when X_1 increase by one unit. The results from linear probability model are presented in Table A3.

Table A3: Coefficient estimates from linear probability model (OLS regression)

	OLS (MM = 0, FN firms eligible for MM = 1)					
	(1)	(2)	(3)	(4)	(5)	(6)
Managerial dummy	0.165***				0.193***	0.202***
Institutional dummy		-0.145***				
Log (Capital raised)			0.025*		0.022	0.045
Negative EBITDA dummy				0.102	0.142**	0.130**
Log (Age)	-0.033	-0.029	-0.028	-0.025	0.014	0.012
Log (Total assets)	-0.293***	-0.298***	-0.307***	-0.294***	-0.255***	-0.229***
Hot market dummy	0.048	0.047	0.038	0.051	0.043	0.031
Cold market dummy	0.018	0.031	0.084	0.069	-0.043	-0.039
Industry dummies	Yes	Yes	Yes	Yes	Yes	No
Constant	-0.776**	0.953**	0.913**	0.937**	0.503	0.967***
N	224	224	224	224	224	224
Adjusted R2	0.42	0.41	0.40	0.40	0.43	0.43
F-statistic	12.5***	12.3***	11.6***	11.6***	11.7***	11.7***

Note 1: ***p < 0.01. **p < 0.05. *p < 0.1

Note 2: FN = First North, MM = Main market